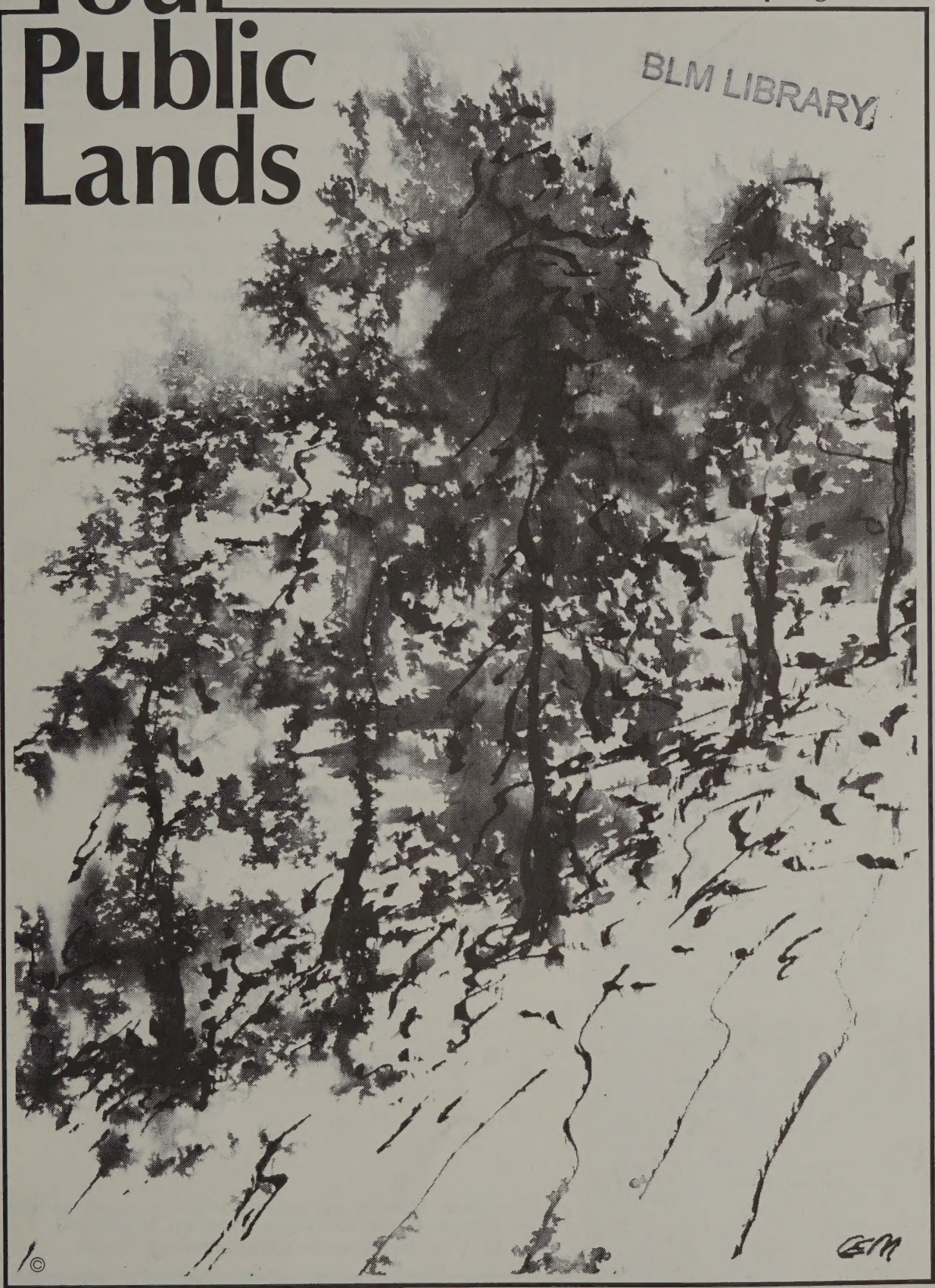


Your Public Lands

Spring 1983

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FORESTRY
The promise and the Challenge



U.S. DEPARTMENT OF THE
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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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On the Cover: India ink and pen, by Catherine E. Mayer, member of the Torpedo Factory Art League, Alexandria, Virginia and Pensicola Artists Inc., Quayside Gallery, Pensicola, Florida.

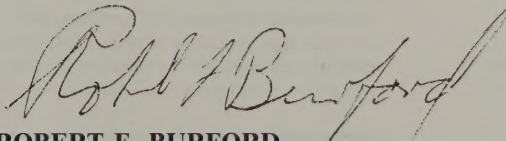
Focus on Forestry

Approximately 90 million acres of the land administered by the Bureau of Land Management (BLM) is forest land. Over two-thirds of this acreage is in Alaska, while 26 million acres are located within the continental United States. Twenty-one million of these acres, called woodlands, are covered with open-grown stands of widely scattered trees. The scenic pinyon-juniper forests of eastern Oregon and the Utah plateaus are representative of woodlands, as are the oak forests of the Sierra Nevada foothills in California.

The remaining 5 million acres of BLM-managed forest lands are those capable of producing high quality commercial timber in quantities sufficient to warrant intensive management. Included in these lands are some of the ponderosa and lodgepole pine forests of Colorado and Wyoming, as well as 2.4 million acres of Douglas-fir forests in western Oregon. These latter forests are among the most productive in the country. They produce about 91 percent of the total board feet harvested annually from BLM forests.

Although these figures can be dazzling, they are less important to note than the vast array of benefits we receive from managing these lands. Public forests are a source of employment, lumber, pulp and paper products, watershed and wildlife values, recreational and scenic values, and a host of other commodities. Through proper planning, BLM manages these forest lands for the benefit of all Americans.

This issue of *Your Public Lands* highlights several aspects of BLM's forest management program. In particular, these articles address many of the complex issues associated with intensive forest management. I hope that you will watch for future articles on related topics and continue to focus on forestry as an important part of our resource management program.



ROBERT F. BURFORD

Director, Bureau of Land Management

A LAYMAN'S GUIDE TO FORESTRY TERMS

*Or How to Understand Foresters When They Talk to Each Other

Forestry, like most disciplines has a language all its own. While this is of great benefit to foresters, it often confuses the layman in reading technical papers or articles pertaining to forestry. The following terms are frequently found in forestry literature. While we cannot guarantee instant comprehension, the list will help. Some terms have meaning outside of the context of forestry, but here we are only concerned with their application to forestry.

allowable cut The amount of timber that can be harvested during a specified time period under the policy of sustained yield.

annual increment The amount of growth in a given year. It may apply to a single tree or an entire forest.

biltmore stick A graduated ruler used to estimate the diameter and height of standing trees.

board foot (BF) A unit for measuring volume in lumber. A board foot is a piece of timber one foot square and one inch thick, or the equivalent

canopy The cover of branches and leafy foliage in a forest.

clear cutting The practice of removing all trees from a given area in the process of harvest. Clear cutting is often used to harvest those species of trees that are intolerant of shade.

climax species The kind of plant that predominates in the final stage of ecological succession in a forest.

commercial forest land Land capable of producing at least 20 cubic feet of wood per acre per year of commercially useful tree species.

conifers Trees that produce seeds in a cone, like pines, firs, and spruces.

cruising timber A system for determining the amount of merchantable timber in a specified area by tallying the numbers, sizes, and defects of the trees, and then calculating volumes of wood present. A cruise may tally all trees or may be based on a sample of the trees present.

den tree A tree with cavities that provides shelter or nesting sites for animals or birds.

diameter tape A metal tape which is placed around the circumference of a tree, but which is graduated to give the diameter of the tree in inches or centimeters.

environmental impact statement (EIS) An analysis that assesses the probable effects of proposed actions and alternatives on the environment, in accordance with the National Environmental Policy Act.

fuel wood Wood, also called firewood, that is burned to produce personal comfort or to produce energy in other forms such as steam or electricity.

genetically improved stock The offspring of selectively pollinated superior trees, used for reforesting areas where timber has been harvested.



hardwoods Broadleaved trees, such as oaks, maples, and mahoganies. The relative hardness of wood, whether from conifers or hardwoods, depends on species, rate of growth, and other factors.

intensive management A forest management system employing silvicultural practices designed to enhance timber production and other resource values.

mast Acorns and other fruits of forest trees available as food for wildlife.

M board feet (Mbf) Thousand board feet. The Roman numeral M denotes one thousand; thus, 63 Mbf means 63,000 board feet and 2,100 Mbf means 2,100,000 board feet.

MM board feet (MMbf) Million board feet. The Roman numerals MM mean thousand thousand or million, so 2.1 MMbf means 2.1 million board feet or 2,100,000 board feet.

multiple use A resource management system that seeks more than one use from a resource area. For example, a commercial forest could be managed in a way that would produce timber and provide wildlife habitat, yet also protect the watershed and provide for recreation.

O & C lands This term generally applies to about two million acres of forest lands in western Oregon that are managed by the Bureau of Land Management. An additional half-million acres of O & C lands are managed by the Forest Service. Alternate sections originally were granted to the Oregon and California Railroad Company to facilitate construction of a railroad from Portland to the California border. After violations of the grant, the remaining lands were reverted by the Government. Usually included in the definition of O & C lands are 75,000 acres of reconveyed Coos Bay Wagon Road (CBWR) grant lands that now are also managed by BLM.

old growth A stand of trees past normal maturity, where death and decay of the individual trees may cause the loss of wood volume from those sources to exceed the growth in volume of the remaining trees.

on the stump Trees that have not been cut. Often used to refer to a method of selling uncut timber.

P D lands Lands that were part of the original public domain when the Nation was created and have never been privately owned, in contrast to other categories of land managed by BLM such as reverted Oregon and California Railroad grant lands (O & C), reconveyed Coos Bay Wagon Road grant lands (CBWR), and acquired lands.

partial cutting Any of several systems of timber harvest where some but not all trees in a stand are removed at one time. May apply to thinning, salvage, selection, shelterwood, or other harvest methods.

pole timber Trees between sapling and sawtimber size, sometimes subject to thinnings to provide pulpwood or utility poles.



precommercial thinning Removal of excess trees from a dense stand to provide more room for the remaining trees to grow; generally accomplished when trees are so small they have no commercial value and their competition with future crop trees can be economically eliminated. In contrast, trees removed in commercial thinnings of older stands have economic uses.

saplings Small trees, between seedlings and poles in size.

sawtimber Trees suitable for processing into lumber and a variety of other wood products.

scenic corridor A belt of trees along a road or other passageway to preserve scenic beauty.

silviculture The care, harvest, and regeneration of stands of timber, including preparing sites for reforestation, planting trees, controlling competing vegetation, precommercial and commercial thinnings, fertilizing, controlling insects and disease, and applying various harvest systems.

sustained yield A resource management policy that limits harvests of timber and other renewable resources to the amount that can be continuously produced.

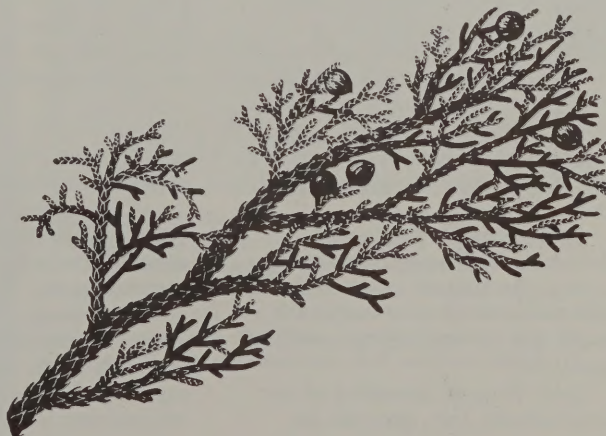
tree rings Concentric rings on stumps or ends of logs where variations in seasonal growth make it possible to count the years of growth and determine growth rates.

underbrush Plants that grow on the floor of the forest, often consisting of shrub-like, shade-tolerant plants.

virgin timber A tract of timber that has never been cut.

watershed An area of land having a common drainage.

widow maker A term applied to dead trees or limbs. The term grew out of the possibility of such trees or limbs falling and killing or injuring forest workers.





STEWARDSHIP

A New Way of Completing an Old Task

By Don Smurthwaite

The stewardship principle is being tested on 25 forestry sites covering 540 acres in BLM's Eugene, Oregon District, Dorena Resource Area. The area is about 35 miles southeast of Eugene. Second Growth, Inc., was awarded a three-year contract in November of 1982 to provide complete care for the acreage. The company will be paid based on how many seedlings are alive at the end of a specified period of time.

While stewardship is well-known among range users, the contract in Eugene is believed to be the first of its kind in forestry. What does a stewardship contract really do?

Jack Viscardi, president of Second Growth, Inc., provides an answer.

"First, it's long-term, stable work, which is very important to

people in our industry. Our industry is changing. It used to be a transient industry, mostly people would work a year or two, when they needed a quick cash fix. But now it's a livelihood, the way we have chosen to make our living . . . so stability is very important.

"It's also an opportunity for people to put their experience to use beyond grunt labor," he noted. "And finally, it gives BLM and us the opportunity to work on something where we both have a common goal."

BLM managers are also aware of the stabilizing effect stewardship contracts could have—"They may lead to providing permanent employment in the immediate area," acknowledges Norman B. Gartley, Eugene District staff silviculturist, but it's the prospect of

saving money for the agency that adds to the appeal of the contract.

"There are fewer procurement actions and a decrease in the number and intensity of inspections," Gartley said.

And then there's the aforementioned attitude of teamwork and the mutual desire to do the job "right" the first time.

"It will foster better communication between BLM and the contractor. We all want the same thing. We've already seen the improved communication to a degree," said Gartley.

Eugene District Manager Dwight Patton said the stewardship contract illustrates a basic principle of human relationships.

"Before, the objectives of the reforestation industry and BLM were different. We sought a healthy, established stand of trees.

The contractor's goal was concerned with getting a specified number of trees or acres planted. But now, the objectives have been brought together, and when you can do that, the possibility for success is greatly increased."

It's the "everybody's -a-winner" attitude regarding the stewardship contract that has helped to focus much attention on the program. The news media in and around Eugene have particularly paid attention to what is going on in the foothills of the Cascade Mountains.

"On the one hand, there's always the cynicism that a newsman has," said Jim Kadera, a reporter for The Oregonian newspaper in Portland, and author of a story on the contract.

"On the other hand, I felt it was an honest attempt by an agency to do business in a wholly different manner from the past."

Mike Meyers, Eugene District public affairs specialist, spent the better part of two days in January with a television crew from the Oregon affiliate of PBS. The crew was preparing a documentary on

stewardship that aired in March.

"It's that rare story where everybody looks good," he said. "One of the PBS crew members mentioned that this was one story where there weren't any villains."

There may not be any villains in the story, but that doesn't mean there aren't potential problems involved with the stewardship concept.

Receiving full payment depends on some things over which no one has any control. The weather for example. One protracted drought in Oregon during the next couple of years could drastically reduce profits from the contract.

"The risk is definitely greater for the contractor than in a standard contract," Gartley assessed. Adds Scott Beddingfield, former president of Second Growth who was instrumental in securing the contract, "We're willing to take the risk inherent in this type of contract because it provides a steady flow of work . . . and gives us more control over the way we perform the work."

Viscardi characterizes the situation as one "of concern, but not worry. There is some level of understanding that there will be reasonableness. But our best expression of our concern is in the planting."

Gartley agrees.

"I think a lot of the risk is under control of the contractor. If he follows good reforestation practices, it will minimize the effects of drought and other severe conditions that could occur."

But what if the summer turns severe and the trees begin to bake? Will Second Growth bank solely on BLM's reasonableness and hope the agency agrees the situation was out of control?

No, answers Viscardi. "In a case like that, we'll be out there with the fire hoses watering the trees," he promised.

Another concern, though more subtle, is the psychology of turning a project over to a group that may not have the experience of BLM.

"We do have a good system here. The knowledge, skills and experience of our people have made



(Left) The ability to reforest a site quickly and economically is the key to maintaining a viable sustained yield timber harvesting program on the public lands. (Right) Reforestation is tricky business. Timing and weather, biological and silvicultural considerations are all important variables. Different prescriptions may even be required for adjacent clearcuts, such as those shown here.

A mobile spar (often called a tower or yarder) is used to haul logs from the hillside to a landing. The loader (foreground) stacks the logs in decks and loads them onto trucks.

it a little difficult to say, 'Contractor, we agree with what you're going to do, go do it.' There was a little fear of not being able to say that something isn't going to work, you'd better not do it," Gartley said.

To help ease that concern, the contract allows BLM to technically maintain control of the project, according to Leonard Anderson, a forest development specialist in the Dorena Resource Area.

"That really wasn't a problem to me, because we still have control of the project. Under the contract, we can order anything to be done that we think is necessary. But the idea is to let them try out their thinking," Anderson said, adding that it would take something "very drastic" before BLM would order a change.

Anderson also pointed out a couple of minor "bugs" that are being worked on, something that should be expected in a first-time effort such as the stewardship contract.

One is agreement with private landowners on rights of way. BLM lands are in a checkerboard pattern throughout much of western Oregon, and management activities invariably involve getting right of way clearances from private landowners. Another concern is the quality of seedlings. BLM guarantees that the seedlings will be of a certain quality. Anderson said that in the early going, the number of seedlings meeting the quality standard "was right at the minimum."

"But nothing so far has been insurmountable," Anderson said, adding that both BLM and the reforestation industry were seeking to learn from the experience.

To the reforestation group stewardship represents the long-sought stability they yearn for.



Viscardi talks about working a regular schedule, being home for dinner by six, time with the family in the evening. If stewardship contracts become more commonplace, that kind of lifestyle would be within the grasp of many reforestation organizations.

"I've got 12 crews working now, but in three months, I don't know where the crews will be. That's the way it is in the business," Viscardi shrugged.

Now that they've a toehold on stewardship contracts, Viscardi plans to market the concept to the fullest, again with the aim of adding the all-important element of stability to the industry.

"There's still a lot of misunderstanding of stewardship among people outside of the Bureau in regard to what we're trying to accomplish," explained Gartley.

He tells of an episode where an industry representative came to the District Office to talk to him about stewardship. The industry rep stated that he was concerned that BLM was turning over its responsibility to a group that was not as well prepared to accomplish the task. Gartley explained the program, its benefits, and that it was not a giveaway of forest management responsibility. After the details were presented, the industry rep didn't walk away a born-again stewardship believer, but "came in

a skeptic and left interested," Gartley concluded. "The concept is intriguing to all segments of forestry concerns. A lot of people are watching us on this contract."

A lot of BLM people were watching in the spring of 1982 when BLM issued a prototype stewardship contract for two sites totalling 33 acres also in the Dorena Resource Area. That contract called for seedlings to survive only through the first growing season. But the results were more than encouraging; a survival rate of virtually 100 percent was achieved.

"Stewardship can work, I think the first trial contract proved that," said Patton, the district manager.

Added Meyers, "Stewardship is an opportunity in which a lot of forestry management issues can be explored positively, rather than in rhetoric."

The ultimate standard of stewardship's success will be reflected in two ways—the success of restocking the 540 acres with healthy trees and the cost to BLM.

Reforestation groups exude confidence regarding the first point. "If we didn't think we could do it successfully, then we wouldn't have touched the contract in the first place, given the high risk," Viscardi said.

Gartley uses a similar line of thinking when it comes to the cost, which amounts to \$246,857 or

\$438 per acre.

"If the costs weren't reasonable, then we wouldn't have awarded it," he said.

While agreeing the price tag "is on the high side of reforestation costs," Gartley said one important point needs to stand clear.

"It is reasonable in light of the treatments and methods of treatments that the contractor has proposed. It's based on doing the job right the first time. We'll be getting a successfully stocked stand in three years if all goes right. If you have a high failure rate, the costs can really jump. For example, if you put \$400 per acre in and get a 95 percent success, versus putting in \$300 and having a 70 percent success rate, then economically, BLM is a lot better off spending a little more at first and getting the extra treatments."

It's those extras that BLM is banking on to make the cost acceptable. Second Growth planters are leaning heavily on the micro-site planting technique which, put simply, allows for seedlings to be planted in the best place possible at the sacrifice of even spacing.

"Everybody out here knows what we're doing and people have been planting pretty well," said Boehm, the planting supervisor. "We look at micro-siting a lot. If you pick the best spot to plant, you give the trees the best chance."

Said a second planter, "Normally, you just pop 'em in. But if you move them around, adjust your spacing, it makes a difference. That's what we've found."

Spots favored for micro-site planting include natural shade areas, away from game paths, in mineral soil, or where some sort of shelter occurs.

Successful planting goes beyond plopping the tree in the best spot, however. Second Growth will use other techniques to help the seedlings survive. They may include placing cards along the side of trees for added shade. Some plastic mesh tubing may be wrapped around the seedlings for protection against deer and other hungry forest critters. Mulching is likely to be practiced in some areas where grasses compete with the young

trees for sunlight, water and nutrients. Some brush cutting and herbicide use will also be considered to cut down the competition between the trees and other vegetation.

Herbicides are one of the background issues of the stewardship contract. Some people in the reforestation industry seem to believe that BLM and other forest managing agencies rely on herbicides too much. Stewardship contracts give them a chance to try alternative methods of controlling competing vegetation with a minimum amount of herbicide use. But a solid indication of herbicide necessity will not likely come from this particular contract, according to Gartley.

"As far as meeting the three year specifications, I'd say they would be able to meet it with using a minimum of herbicides. There may be a need to control the vegetation after the life of the original contract. If the contract were for five years, they would probably have to take another look at using more herbicides," he said.

Controlling vegetation was one of several things on Gartley's mind in late January when he visited some of the stewardship sites. Early in the afternoon he pulled to the side of the road near one tract and hopped out of the pickup truck.

The logged site is on a steep, south-facing hillside. A stream is heard below, at the bottom of a canyon, but cannot be seen. Gartley wandered downslope, occasionally bending over to look at sprouting plants, mostly ceanothus, rhododendron, and vine maple.

"They'll likely have some problems with this one, especially from the sun. It could get pretty dry out here. It's a tough unit," he concluded.

The areas selected for the stewardship trial are those that were next up on the reforestation plan for the area. No sorting was made to give the contractors units that were any easier or more difficult to reforest in the Dorena Resource Area.

"It's a good cross-section, pretty representative of the Dorena area," Gartley said. "A few units are difficult, a few easy, with the rest

somewhere in between."

He spent a few more minutes on the site, and then climbed back into the truck and continued down the road.

Not all of the people involved with stewardship are from the Eugene District. Several people in the Oregon State Office filled key jobs, and at least one person came from four States away to lend a hand.

Bob Leonard works almost 1,500 miles away from Eugene, but he played an important part in getting the stewardship contract off the ground. Leonard works in the procurement branch of the Denver Service Center, and it was his job to head the team that developed the contract. That may sound routine, but it isn't. Nothing like the stewardship contract had been awarded by a forest managing agency and perhaps, in the private sector as well. There wasn't a pattern to follow, no one with experience in the area to call on for advice. "Everything had to be done from scratch" Leonard said. That meant there were bound to be a few wrinkles to iron out.

First, there was the matter of roles. In the past, BLM had called all of the shots. Not so with the stewardship contract. Only the end product could be specified.

"We were in the position of letting them tell us what they were going to do," recalled Leonard. "We tried to write up the contract on the basis of how we wanted the finished product."

"And then, how do you evaluate that? We try to be fair to everybody, to treat everybody the same. But in the stewardship contract, you need to look down the road in three years to see the results."

Leonard and the others working on the project resolved the problem by getting as much information about the sites as possible—including things such as the precipitation records—and developing a profile of what BLM should reasonably expect. That's really the best BLM could do outside of having a functioning crystal ball.

Continued on page 22

BLM and the Forest Service —A Comparison

By Scott Brayton and
Bob Berg

The Bureau of Land Management and the Forest Service are like cousins, related in some ways, yet having differences which establish their own individuality. Both agencies manage their forest lands under the concepts of multiple use to assure continuous production of trees and subsequent forest products while meeting other diverse uses of the land.

Sometimes the public becomes confused with apparent differences in operational procedures and policy between the two agencies. Public laws, legislative mandates and directives governing the management of these forested lands have been enacted for each agency. There is a code of federal regulations pertaining to the Bureau of Land Management (BLM) and the Department of the Interior and a separate code for the Forest Service and the Department of Agriculture. Both agencies work together to minimize any impacts to the public because of these differences.

The organizational structures of the two agencies is substantially different yet aimed toward the same goals of managing the lands as required by law. Geographic differences influence the manner in which each agency administers lands. The Forest Service is organized into nine regions responsible for 154 national forests. Each national forest has a forest supervisory office and several district offices. The Forest Service also operates eight forest and range experiment stations and one forest products lab.

The Bureau of Land Management works a little differently. Twelve State Offices administer areas that generally conform to State boundaries and consist of one or more States. The State Offices provide support and guidance to district of-

fices which offer public outreach through one or more resource area offices.

A basic difference between the Forest Service and BLM is how each agency acquired its forest land base. Generally, national forests or forest reserves were created early in our country's history. The Creative Act of 1891 gave the President authority to "set apart and reserve in any State or territory having public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as national forest." The Organic Administration Act of 1896 stated in part:

All public land . . . set aside and reserved as National Forests . . . shall be as far as practicable controlled and administered in accordance with the following provisions. No National Forest shall be established, except to improve and protect the forest within the boundaries or for the purpose of securing favorable conditions of water flow and to furnish a continuous supply of timber for the use and necessities of citizens of the United States; but it is not the purpose or intent of these provisions or of the Act providing for such reservations, to authorize the inclusion therein of lands more valuable for the mineral therein, or for agriculture shall make provisions for the protection against destruction by fire and depredation upon the public forests and National Forests . . . and he may make such rules and regulations and establish such service as will insure the objects of such regulations, namely, to regulate their occupancy and use and to preserve the forest thereon from destruction . . .



Lands "chosen" and set aside under the Acts became national forests and the forests became the national forest system. Forested areas selected generally were of sufficient size and contiguous public ownership to present very manageable units.

Forested public domain land not selected as national forests are managed by BLM. Although manageable, the lands are scattered and



have private lands intermixed, creating legal access problems. The acreage of these tracts vary from quite small areas to fairly large.

Besides public domain lands and the forest lands of Alaska's interior, the Bureau also manages the O & C lands of western Oregon. Although these lands only amount to about two million acres, they are some of the most productive and commercially valuable timbered land in the United States and are the heart of BLM's forestry program. Once a part of a land grant to the Oregon and California Railroad, the lands were repossessed by the Federal government in the early 1900s because terms of the land grant had been violated. In 1937 the O & C Act was passed giving the Bureau the authority to manage the land for multiple use and sustained yield. The Act requires the Bureau to maintain permanent forest production while protecting watersheds, stream flow

and contributing to the economic welfare of local communities and industry.

One major difference between the two agencies is in disposition of stumpage receipts. Fifty percent of the Forest Service receipts go to the Federal treasury, 25 percent goes to the counties and the remaining 25 percent is held in the Knutson-Vandenberg fund. The Knutson-Vandenberg Act authorizes the Secretary of Agriculture, in the public interest, to require a deposit from any purchaser of national forest timber to be used for the betterment of the Federal lands.

Timber receipt disposition in BLM depends on whether the resource is found on public O & C lands in Western Oregon or public domain lands. Funds are distributed to state and local governments through distribution formulae established by Congress and the Oregon State legislature. Receipts from the sale of timber on all O & C lands are pooled. Fifty percent of this revenue is distributed back to the counties, 25 percent of the receipts go to the Federal treasury and the remaining 25 percent is used as working capital. In BLM's public domain forestry program, 25 percent of the receipts goes to local government and the remaining 75 percent goes to the Reclamation Fund.

There are some minor differences in how the two agencies sell their timber. The Bureau usually sells forest products on a cruise basis. These cruise sales or "lump sum" sales, as they are commonly called, are sales in which the volume of timber is estimated according to size, species, quality and other characteristics of the timber stand to be sold. The purchaser pays for the forest products based on the cruise estimate. The Forest Service usually sells timber as scale sales. An estimation of the timber products is made and then the timber is harvested and measured for payment.

The lengths of timber sale contracts also vary between the two agencies. BLM contracts only last up to 36 months while Forest Service contracts may last up to 60 months.

Improved program efficiency

and better public service have resulted from coordination meetings between the BLM and the Forest Service at all organizational levels. This covers a variety of areas including sharing of facilities, equipment, developing joint grazing plans, interagency training and workshops, forest and range fire control and prevention, program monitoring, and contracting for aerial photo coverage. Joint timber sales are also becoming more common.

Cooperation and coordination in wildlife habitat studies for elk and bighorn sheep have been essential and productive in providing both agencies with data defining critical habitat components, migration routes and improving population estimates. Information gathered strengthens the credibility of the data and enhances species management potential while optimizing expenditure of research and management dollars.

A classic example of how BLM and the Forest Service cooperate was the South Pass insect control timber sale in Wyoming at the south end of the Wind River mountain range. The area encompassed by the control project has historical significance resulting from the early gold mining activities and passage of the Oregon, California and Mormon wagon trains. The area had a heavy mountain pine beetle infestation in the lodgepole pine stands since the early 1960s. The Bureau instituted a direct control program in the area to try and stop the beetle's rapid spread. Pockets of beetle infestation were located and the trees cut and treated with a chemical to kill the beetles. This control method proved costly and ineffective and the beetle infestation soon reached epidemic proportions.

In 1975, a joint timber sale was proposed in the South Pass area involving the Forest Service, BLM, the State of Wyoming and private landowners. The main objectives of the project were to harvest the dead timber, harvest susceptible live trees to slow the advance of the beetle into adjacent timber and to create large areas of diverse wildlife habitat in the harvest areas.

The Forest Service was responsible for writing the environmental

analysis with input from BLM and State personnel. The three agencies worked together to determine the amount of timber in the area and a Forest Service timber sale contract was drawn up for the project. Overall contract compliance was handled by the Forest Service while the BLM and the State remained responsible for their respective lands involved in the sale.

The cooperative sale totaled 22,750 acres of which 6,000 acres were timbered and to be harvested. Approximately 900 acres were BLM forested lands.



The sale was advertised in 1976, sold to Wind River Ranch of Dubois and later transferred to Wickes Lumber Company of Evanston. Logging was started on the Bureau's historic Miner's Delight area and completed on BLM lands before the sale expired in 1981.

The sale's objectives were met with the exception of slowing or stopping the hungry beetle's advance into mature timber stands. This was probably due to the limited capacity of the loggers and the sawmills in the area. Most of the timber within the original sale area was harvested before it deteriorated and became unusable. The harvesting activities stimulated the sprouting of aspen in some areas, providing excellent wildlife habitat and species diversity within the area. Surveys show adequate natural regeneration of lodgepole pine in most areas that were harvested. Unstocked areas have been planted with seedlings which were grown from seed collected in the areas harvested.

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Flapping gunny sacks and dodging rattlesnakes

BLM firefighters cope with about 2,500 fires a year. Each one is different, with its own tale to tell. The following is one account of the realities of firefighting drawn from the experience of Ray Hogue a Natural Resource Specialist with BLM who has been fighting fires on an "as needed" basis for 10 years.

TROUT CREEK FIRE 1981

It was a hot, sunny August afternoon, with a twinge of smoke still lingering in the air from a fire the railroad started the day before near Gateway. My partner and I were dispatched early in the afternoon to the Gateway fire to ascertain if any BLM land had been burned or was threatened by the fire. So we went down to Gateway and circled around the Gateway fire which by then was in the final stages of mop-up. After determining that no public land was involved, we were enroute to Prineville when we

were dispatched to Trout Creek where a fire was reported in the campground.

We arrived at the campground to find that campers had lined the fire around the campground and had the area pretty well secured. The main concern was the wheat fields on top of the rim, since the fire was almost to the top when we arrived and the winds were blowing from the northwest at a moderate rate. The helitack crew (a crew assigned to a helicopter) showed up shortly after we arrived, landed on top of the rim and concentrated their efforts there, where the fire had already broken over the top.

At this point, the best course of action was to begin making bucket drops on top of the rim in conjunction with the helitack crew to protect the uncut wheat fields on Agency Plains. Since we were already at the bottom of the canyon, my partner and I used the pumper (water truck) to secure the campground, then began flanking



the fire on the northwest side, working up to the rim. A Bureau of Indian Affairs' (BIA) helicopter was called in at this time to assist in bucket operations where they began a round robin operation along with our helicopter on top of the rim. At this time, the south flank of the fire was unmanned and burning in heavy sagebrush and grass on slopes up to 75%.

Meanwhile, back at the campground, Ray was relaying to the office that Dan and I were about to whip the fire on the north end. Actually, we told him to say that we were holding our own and the fire was getting ahead of us up the hill, but that's the way it goes in the radio relay business. At least they knew we were still on the fire.

After hearing this, Dan and I figured we'd best go to the top of the hill. We knew if the fire made it around the corner to Trout Creek it would go like a gut-shot panther. So we doubled-up on gunny sacks and started working up the hill. This was a bonafide challenge, as the sagebrush was hip-high and the rocks weren't your pea-sized gravel, they were genuine boulders, the kind you get ambushed

from. After about an hour or so they had the top pretty well in hand so a couple of crews started working down the hill on the south end which was starting to make a pretty good run. We knew it was pretty steep as we heard a couple of fellows say the only way they could climb down the hill was to lower themselves down on their imaginations.

By this time the BIA ship was free to start helping Dan and I on our end of the fire, which was good because we'd already worn out one gunny sack apiece until it looked like we were standing around flapping a handfull of strings. With the ship working on our stretch it gave us a chance to cool off. We had long since used up our drinking water and we were so dry we had to prime ourselves to spit. The bucket drops were very effective. We broke out fresh gunny sacks and were able to make pretty good gains up the hill. The good going only lasted for about a half hour as it got dark and the air force had to head back to the barn.

As the first dark grey clutches of twilight descended, we found ourselves gearing up to battle the inferno well into the night. It ap-

peared that we were in pretty good shape with crews advancing down the south flank working toward the river, one crew protecting the top and Dan and I coming up the north flank to tie into the rim.

As the night wore on, the fire calmed down somewhat and everyone was making good progress on their respective sections. The hour was late, crickets were chirping, campers were howling at the moon which was casting an eerie glow through the smoke from the fire when Dan and I finally reached our goal - the sheer wall cliff separating the Canyon of the Deschutes and the flat cropland of Agency Plains.

There to meet us at the cliff with a canteen of water and words of wisdom, were Will and Janell who had been protecting the top of the rim. We had just set down to take a breather and a pull off the jug (of water) when the silence of the night was broken with an emergency call on the radio. Walt and Doug, who had been working the south end of the fire, had stumbled onto a couple of campers who had found another camper along the river who was barely breathing. The boys said they had been giving him mouth-to-mouth resuscitation but it wasn't working too well and they couldn't get a pulse. They wanted us to call for an ambulance and they needed some help lickety-split down at the bottom of the hill. We called for the ambulance from Madras and Will was on top of the cliff and couldn't get down too easily. I started dog trottin' down the hill.

When I first started down the hill, it was so dark you couldn't find your nose with both hands, so I was just slidin' down the hill trying to dodge the boulders and keep from falling down and becoming another casualty. About half way down the hill was the turning point in the journey as I knew things were going too smoothly. It's like they tell you that confidence is that smug feeling you get just before you realized you screwed up. Well, I was going down the hill thinking how I could see pretty well, hadn't stumbled and was making good time when the stick I just stepped on com-



menced to putting up a horrible buzzing behind me. That was good for picking up the pace to double time, but when the next step I took was right on top of another rattlesnake, I felt like I'd been hit with a cattle prod. My legs definitely had a mind of their own and I was just trying to keep up with them. Needless to say it wasn't long until I'd jumped the fence and was in the pumper where Walt was waiting for me.

Walt had located an RN and a paramedic in the campground. We all high tailed it to the trail head. Looking back, we saw that Will had made it down the hill part way and, since we had plenty of help, we had him turn around. I don't think he was too thrilled at running down the hill only to have to turn around and trundle back up.

Just as we started up the trail, a frightened young woman came up to me and asked if we were going to help her husband. We all tramped up to where her husband was. By that time, he was breathing on his own again.

By the way, we finally got the true skinny on the day's activities. He seemed awfully young to be a heart attack victim and it was hard to believe that smoke inhalation was the complete cause of his collapse. His wife told us sort of sheepishly that he had drank a few beers (only a half case) chased that with some whiskey and the majority of the smoke he inhaled was from a "roll-your-own". Needless to say, after my trip down the hill and finding out all the circumstances, it's a good thing he was breathing on his own as I would have been pretty reluctant to give the guy any of my air! About 20 minutes after we arrived, the ambulance from Madras showed up and the EMT's checked the victim over and pumped him full of oxygen. By this time, he was coming around pretty good and getting as ornery as a rat-tailed horse at fly time. He refused to go to the hospital, so they made him sign a release and sent him to bed.

With the drunk put to bed and ambulance and cops headed back to town, we turned our attention once again to the fire. The winds had shifted down canyon, making

it a good time to start working on the south edge of the fire.

Walt, Doug and I hiked back up the trail and eyeballed the fire. We were sitting down cogitating our next move, when we looked across the fire to the line where Dan, Will and Janell were, and saw a big orange-red glow coming up from just above the campground. Just then Dan called on the radio and said that all of the line we had built and all of the real estate we had pulled out of the jaws of the blaze earlier had just gone up in smoke. Apparently the wind had blown a hot ember across the line and the fire was burning in the junipers above the campground. We allowed that the boys at the top of the hill could work their way down the south flank of the fire where we were and catch the fire at that end as it had slowed up substantially. Walt, Doug and I headed back to the campground so we could protect it and start working the breakout from the bottom side.

The pumper was at the trailhead. We jump started it (the battery had been dead all afternoon), and took off to the other end of the campground to review the situation. The campground was not faced with any immediate danger so we parked the pumper and geared up to start working our way up the hill. By this time it was well into the night and we hadn't taken on any groceries since breakfast the day before and our stomachs were so shrunk up they wouldn't even chamber a liver pill. We decided to scour the pumper for some rations. We had used up most of our allotted rations on the previous fire and hadn't had a chance to restock on our way through town. It didn't take long to figure out that rations on that rig were as scarce as bird dung in a cuckoo clock, but we finally found some corned beef hash to split amongst us.

By now the fire was making a pretty good run to the northeast and heading toward Trout Creek like a freight train packin' the mail. We loaded up with gunny sacks and shovels and began at the lower edge of the fire with Will, Dan and Janell coming down from

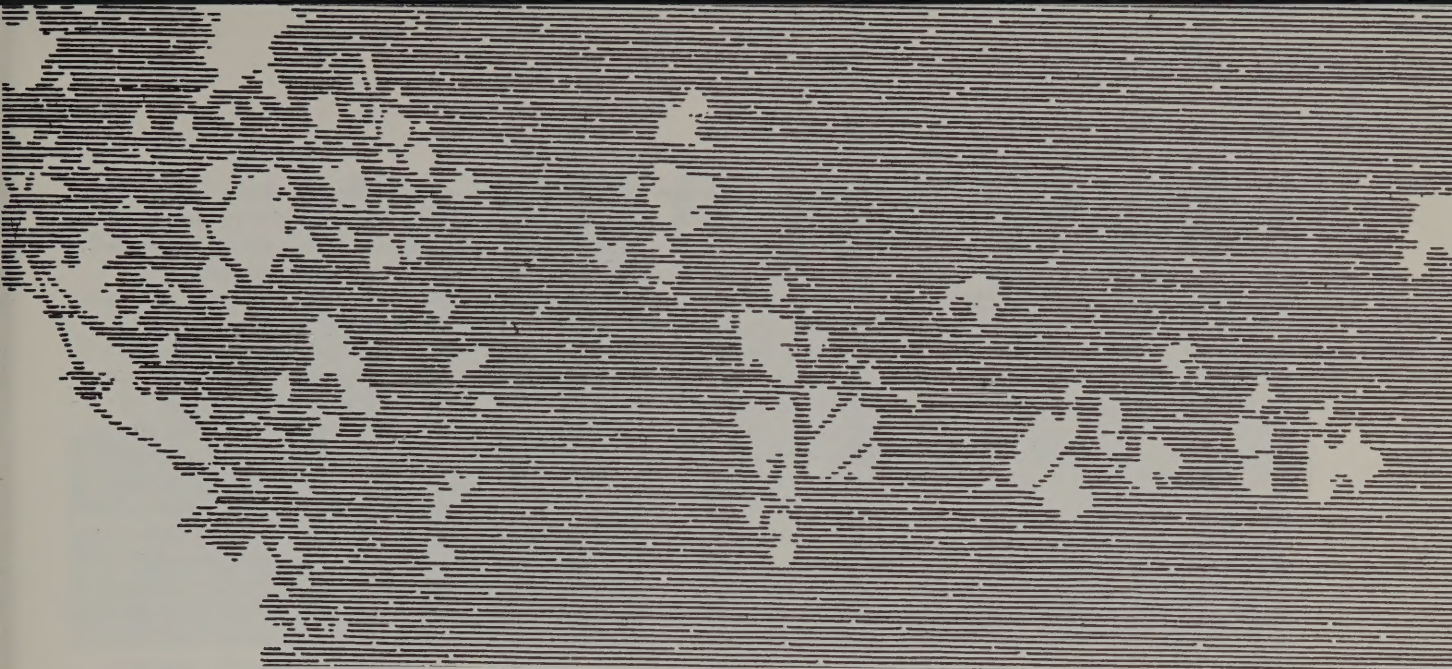
the top working on the upper edge. At this point, we had a long skinny finger of fire that was running parallel with the hillside. I don't know what that fire got into but in about 15 minutes the front end of the fire had shot around the hillside and button hooked clean to the rimrock again and the wind fanned the hook right back into where the three above us were.

They decided they weren't doing a lot of good and dropped down to help us out. This was a pretty good lick as now we could get the gunny sack people spread out and double stroking up the hill with two shovel people trailing drag behind us to take care of the heavy fuels. By this time Jeff and Mike had worked their way down to the river and had come down the trail to where the rig was parked. They called and wanted to know if they should stay close by the rig but we all laughed and laughed 'cause we knew they were destined to follow us up the hill. After they took a breather, they commenced the trip up the hill behind us which was a big help as they could catch anything we may have missed and saved us a lot of work later on.

As the first vibrant, crimson streaks of dawn shattered the cold black clutches of night, we were faced with a spectacular sight. As we looked up the hill, the towering cliff of the final rim of the Deschutes Canyon loomed above us. It was then we realized that our goal was within reach and with the prospect of breakfast and a rest only a short distance away, we summoned the energy to make the final assault up the hill. As last we secured the line around the fire into the base of the cliff.

As the first of the crew was scouting their way through the precipice, we began getting reports that breakfast and relief crews were on their way. This served to quicken the gait, and as the last of the crew assembled at the top of the plateau, the steady drone of the coming helicopter was a welcome sound. It sure was a welcome sight to see the boxes of grub along with a coffee pot as big as a dipping vat

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Both the Forest and the Trees

The role and responsibilities of the Bureau's On-the-Ground Decisionmakers

By G. Majors and others

An angry crowd of nearly a hundred jams the library and spills out into the hallway at Tri City Elementary School in southwestern Oregon. While BLM environmental specialist Jake Jakabosky attempts to present a proposed "Vegetation Management Plan," some members of the audience are openly defiant about the use of herbicides on BLM-administered lands.

Jakabosky tries to continue but is cut off repeatedly. "Where's Avery hiding?" a bearded man demands to know. A young woman in bib overalls chimes in: "If Avery's the one making the decision to poison our environment, he oughta at least have the guts to be here at this meeting!"

A stocky, sandy-haired man aged 50 or thereabouts comes forward into the center of the circle of protesters. "I'm Stew Avery," he says.

To say that Stew Avery takes a

lot of heat is not to imply that he's a stranger to the cold. He and 20 counterparts make decisions worth as much as a million dollars at a crack, yet they're seldom far from the rugged slopes of forest land they manage between the Cascade Mountains and the Pacific Ocean. They're the execs with the mud on their shoes. They're the Bureau of Land Management's on-the-ground decisionmakers in western Oregon.

Few jobs with the Bureau are more widely misunderstood.

When area managers in western Oregon are mistaken for timber managers, it is because timber management is mistaken for the whole of the Bureau's mission there. The source of the misconception may be partly legislative, since the O&C Act of 1937 clearly emphasizes timber production. That law applies because well over 90 percent of BLM-administered land in western Oregon is revested O&C (Oregon and California Railroad) and reconveyed CBWR (Coos Bay Wagon Road) grant lands as distinct from public domain.

People still try to clarify the relationship between the O&C Act and the broader Federal Land Policy and Management Act of 1976, but beyond the scope of that debate is a general principle all sides accept: Managing the former grant lands in western Oregon requires attention to other values in addition to commercial timber.

The real reason why casual observers often fail to notice anything but timber production probably has less to do with the legalistic subtleties of the O&C Act than with the sheer scope, visibility and economic impact of BLM's forestry program in western Oregon. More than a billion board feet of commercial timber is sold by BLM in western Oregon every year. That's enough wood to produce end-to-end 2X4s completely encircling the earth and stretching forth in an unbroken column reaching beyond the moon.

"Any way you look at it, that's a lot of timber," says area manager Bob Smith, whose South Umpqua Resource Area southeast of Rose-

burg accounts for close to 50 million board feet annually. "That much timber volume in a regional economy fueled by the wood products industry naturally puts us in a kind of spotlight. The average bank teller or even the average lumber mill employee here in Douglas County probably doesn't know a whole lot about BLM, but you can bet their bosses do." Smith cites a 1976 study that found in the midsection of his home county 90-95 percent economic dependency on timber.

Indeed, the county government's own programs and payroll are funded in sizable part not by taxes but by a share of the proceeds from Federal timber sales. Under terms of the O&C Act, county governments in western Oregon get 50 percent of the money collected through the sale of timber on the revested O&C grant lands. In good years that has meant as much as \$25 million in Douglas County. Says Smith, "It doesn't take a genius to figure out why county commissioners and business leaders take an interest in what we do."

Juggling and balancing acts are part of the job for Smith and other westside managers. They must satisfy multiple obligations, including the O&C Act's promise to contribute to "the economic stability of local communities and industries." The trick is to maintain or increase the commercial timber supply while accommodating other, ever-increasing demands on a finite land base. Area managers say the closest thing to magic that's available to help them accomplish this is the sequence of practices collectively referred to as "intensive timber management." The idea, basically, is that fertilization, pre-commercial thinning and other intensive management "treatments" can increase productive capacity, thereby increasing the volume of timber that can be harvested. But there's a catch or two, or 22, and sometimes more in the less isolated rural areas.

Back to the challenge thrown in Stew Avery's way during that stormy meeting in Tri City. What does an area manager do when the public, a faction of it, violently op-

poses one or another of the management treatments prescribed by specialists who are being paid to know about such things? To put it more exactly, what does an area manager do when professional silviculturists on his staff have advised that a particular unit needs a particular herbicide application to assure a high percentage of survival among newly planted conifer seedlings—and when the U.S. Environmental Protection Agency has determined the herbicide is safe for forestry uses—and when a multidisciplinary environmental assessment has projected no serious adverse impacts—and when angry citizens nonetheless object, viewing the proposal as a direct threat to their own and other lives? "The first thing you always do is listen," Avery explains. "Even if somebody's point of view seems completely invalid, you still have to be patient and listen. We can never completely eliminate the conflict associated with herbicide use here in western Oregon; all we can do is try to minimize that conflict."

Minimizing it often means showing a willingness to compromise. Since much of the controversy centered on a single unit in his area, Avery eventually consented to an experimental, alternative method of weed control there. Some of the protesters had requested an opportunity to demonstrate that newspaper mulches could be applied as cheaply and effectively as herbicides. From a technical standpoint, Avery had reservations, but bought off on the idea "because vegetation management here in western Oregon is much more of a political, social or public relations problem than it is a silvicultural one." Although the contractor handling the newspaper mulching did not get the job done, Avery looks back on his decision without regrets. "It was something worth trying, and our willingness to try something different there probably made it easier for us to accomplish our herbicide program elsewhere."

Yet, if knowing how to compromise is essential, knowing the limits of compromise is no less so. One westsider who speaks to that point with conviction is Rob Lewis,

who came to forestry by way of John Muir and Henry David Thoreau. While still in his second year as manager of the Galice Resource Area, the herbicide issue brought Lewis into direct conflict with youthful members of a commune who were determined to thwart BLM's plans to apply herbicides in their area. "Our project site was over a mile from where they were living," Lewis remembers, "and the use of a chemical treatment was especially important to us there because it was an outplanting site." An outplanting site is a fenced unit where Bureau geneticists test growth rates of offspring from genetically superior parent trees. Without effective and uniform control of competing vegetation on such sites, results of the growth studies may lack scientific meaning.

Lewis and a staff forester, after all else had failed, paid a final visit to the commune. They shared an organic vegetarian lunch and talked turkey. "We told them exactly what was negotiable and what wasn't," says Lewis. Negotiable matters included the type of herbicide to be applied and the method of application; what was not negotiable, in this instance, was the basic need for a chemical treatment for weed and brush control on the eight-acre outplanting site. Shrugs Lewis, "I don't think we gained instant acceptance of our program, but I think we did gain some acceptance of ourselves as human beings—just by being there and being straightforward about where we drew the line."

Lewis, who thinks the toughest part of the job is "trying to negotiate agreement between the environmental public and the people interested in making economic use of the land," admits his toughest task of late has been quite different. Now manager of the Butte Falls Resource Area, he administers one of the larger grazing programs among the timber-rich resource areas of western Oregon. He is convinced that the grazing capacity in his area can be tripled or even quadrupled in the near future without detriment to the annual timber harvest or to environmental amenities. The hardest part,



(Left) Tree planting is arduous work. Along with site preparation, it is an essential part of the reforestation program on many BLM Districts. (Right) The trick is to maintain or increase the commercial timber supply while accommodating other, ever-increasing demands on a finite land base.

he says, is "trying to convince timber and livestock operators that their interests are compatible."

Even if tripled or quadrupled, the grazing program in Lewis's and other westside resource areas will remain small in comparison with the program in the vast rangelands administered by the Bureau elsewhere in the western States. The same comparative exercise, however, does not cause a similar shrinkage in other non-timber resources. Recreation, wildlife habitat, fisheries, lands, minerals, cultural resources—all are sometimes thought of as the "incidental resources" managed by BLM. Yet most such resources, when measured without reference to the forestry program, turn out to be far from incidental in scope or significance.

Consider, for example, that the Bureau's developed recreation facilities in western Oregon include over a thousand camping and day use units in forty-odd locations. Each year those sites host more than twice as many picnickers as all the Bureau recreation sites in Arizona, California, Nevada and Idaho put together. In addition, other recreationists come by the tens of thousands to hunt, fish or pursue their sundry forms of fun in the public woods of western Oregon. For the State as a whole, total recreation visits to public

lands are reckoned at more than seven million annually. In a State where tourism is the second leading industry, it would be hard to overstate the significance of such numbers.

In the North Umpqua Resource Area northeast of Roseburg, Ben Hobbs has responsibility for public lands whose scenic and recreational values are re-discovered each year by thousands.

In an area where recreational interests are intense and multiple, some of the land use conflicts encountered by Hobbs and his staff have nothing at all to do with the forestry program; instead, they are conflicts involving alternative forms of recreation. Hobbs cites, as an example, the recent filing of five placer mining claims along a particularly scenic stretch of the North Umpqua River. "There's a lot of recreational gold mining in this county," he explains, "and we always try to be as accommodating as possible. In this particular case, though, I had some real reservations because of potential conflicts in this sensitive area. The claims were located in an area popular with swimmers, sightseers, and other recreationists." Hobbs initiated a formal public hearing on the matter, and an administrative law judge with the Department of the Interior's Board of Land Appeals eventually disallowed the

proposed mining.

Since much of what they do has little to do with selling timber, it is not hard to understand why Bureau westsiders bristle when they hear it said that their responsibilities are summable in board feet. "If all I had to worry about was timber management, my job would be a lot easier than it is," says area manager Bill Bradley. His Grants Pass Resource Area contains, besides a few million trees, resource values such as:

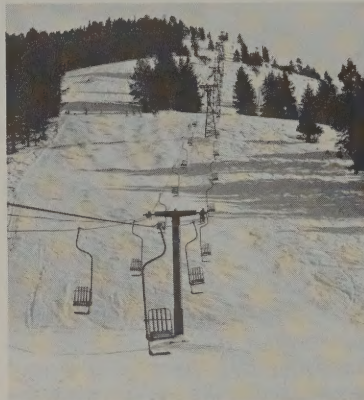
- A nationally famous Wild and Scenic River (the Rogue) that attracts many thousands of visitors every year;
- About 75,000 acres of locatable mining claims, including at least 50 claims that are currently being worked at a level beyond casual use;
- Two designated Research Natural Areas;
- Over 100,000 acres of critical deer wintering range;
- A probable Area of Critical Mineral Potential known to contain deposits of nickel, a Presidentially declared "strategic mineral;"
- A potential Area of Critical Environmental Concern that hosts 14 different species of potentially threatened and endangered plants;

- *Two cultural sites listed on the National Register of Historic Places;*
- Three special "Spotted Owl Management Areas" for protection of a species designated as threatened in the State of Oregon;
- Numerous prehistoric archeological sites, including one known to contain some of the oldest native American Indian artifacts ever found in the State; and
- A 26-mile hiking trail that has been officially designated as a National Recreation Trail.

Bradley's staff numbers more than 40; among them are specialists in fields ranging from soil science to wildlife biology, from forestry to realty. Their day-to-day responsibilities include a heavy workload in occupancy trespass abatement; a bustling lands program dominated by linear right-of-way cases; a fuelwood demand growing by quantum leaps; and a grabbag of assignments relating to the management of the Rogue River Recreation Area. All of this, of course, is to say nothing of the workload associated with a forestry program that calls for an annual timber harvest of 47 million board feet.

But never mind all those numbers. An equally important part of any area manager's workload are the one-on-one close encounters of a customer relations kind. It might be a logger who feels he's not getting the quality or quantity of timber he paid for. Or it might be someone who thinks the Bureau ought to be doing something about the field mice in a trailer park. Karl Rymer, veteran area manager in the Lorane Resource Area south of Eugene, can give dozens of such examples. One story he tells has to do with a university professor who was genuinely shocked to find out that some of the trees on BLM land in his neck of the woods were scheduled to be cut down and turned into lumber. He had assumed that those trees would always be there. It was up to Rymer then, to explain the realities of the O&C Act and to assure the professor that the sale unit would be promptly re-

forested. Whether he's talking one-on-one with a dissatisfied constituent or explaining Bureau policies to a large audience of business leaders at the South Town Rotary Club, Rymer brings to the task a belief that the people-oriented problems are the really important ones and you can't begin to solve those without an honest concern for people.



The job is a big one that's getting bigger. One reason why area managers in western Oregon have more responsibility than they used to has to do with the bureauwide emphasis on decentralization. To better serve local publics, recent organizational changes have shifted more and more of the decision-making authority to the area level.

There's a second, equally obvious reason why the overall responsibility of westside area managers is on the rise. Some of the problems and issues they encounter today simply did not exist a decade or two ago. The new emphasis on energy and mineral exploration, the burgeoning demand for domestic fuelwood near urban areas, the increased political savvy of protest groups—these and other changes have made it necessary for Bureau managers to innovate just to get the old job done in new times.

Probably no single issue that has lately sprouted in western Oregon better illustrates that point than does the cultivation of marijuana on public land. A decade ago that problem was either nonexistent or so isolated nobody much worried about it. Today, people worry. A

bureauwide task force has been formed to seek answers. In the meantime, some western Oregon area managers report their field crews are becoming increasingly skittish about entering certain areas they fear may be occupied or boobytrapped by "pot" growers.

An area manager explains, "We sure don't want them to take any chances if they stumble into a potentially dangerous situation. At the same time, you have to remember that our goals and responsibilities don't diminish just because we find a marijuana plantation." In other words, abruptly departing from an area where criminals might be guarding illegal marijuana plots (with subsequent reports to law enforcement officers) may be a proper and prudent thing for a BLM forester to do. The point is that today's resource managers, in attempting to meet target levels for timber harvests and other programs, are being tested by obstacles unknown to their predecessors.

What new problems and issues relating to public forest lands will emerge during the decade ahead is anybody's guess. One certainty though is that success in that job will continue to depend far less on a specialized knowledge of timber management than on an understanding of people. As Rymer puts it, "you don't have to be an expert technician in forestry or any other field. The ability to judge people and to get along with them—all different types of them—is the really important thing."

G. Majors is the Public Affairs Specialist in BLM's Roseburg, Oregon District.

Benefits of Forest Management

By Douglas Dodge

A well managed forest means different things to different people. Forest management is the process of managing forest resources to produce desired values and products. These products change with time, economic conditions, public demand, legislation and capability of the land.

While timber production results in jobs, a tax base, and other economic benefits, it is but one of the benefits of good forest management. The forests and woodlands of the western States produce a number of other benefits which are often difficult to quantify or attach a dollar value to. Among these benefits are wildlife, recreation, and watershed.

Many species of wildlife are dependent upon forests for suitable habitat, that special arrangement of food, water and cover required to meet the needs of a species. While specific habitat needs vary, many different animals may occupy the same area. Each plant community in the forest provides a different habitat. These plant communities reflect man's use of the site and the environmental influences on the site, such as soil, slope and aspect, temperature, elevation, solar radiation, and precipitation. The plant communities evolve through a series of stages from bare ground to a final climax. Each stage has its own unique set of habitat niches and wildlife supported by these niches.

A mosaic of different plant communities and stages within communities produces "edge," the place where communities meet. "Ecotones," where different plant communities overlap, provide a rich habitat because they have at-



(Above) Aerial application of herbicide in a brush control program. (Below) Forest resources must be managed well to ensure the productivity of streams.

tributes of the edge itself, plus those of the adjoining communities or stages.

Forest management may result in a mixing of plant communities or stages, which increases the amount of edge and therefore, the habitat richness and number of niches that in turn support more animal species.

The protection of wildlife and the manipulation of the forest environment to enhance wildlife habitat have benefits beyond those for wildlife. There is value in big

game animals, both economically and recreationally. Because of the high profile hunters have maintained and the taxes they have paid on guns and ammunition, certain wildlife species have been encouraged to increase in number through manipulation of their habitat. However, using the same criteria of economic values, non-game animals are also important. Birdwatching, photography and enjoyment of animals in the wild have become popular activities in our forests and woodlands.

People engaged in these activities spend millions of dollars annually on equipment, licenses, travel expenses, etc.

The properly managed forest with a rich habitat and its wide array of habitat niches provides many different species the opportunity to maintain a relatively large, viable population which can better adapt to the changing conditions, increasing its chances for survival. From a utilitarian perspective, the well managed forest provides a great reservoir of genetic variability which may provide many benefits to man as research continues. Some of the benefits we have already received are a vaccine for leprosy distilled from the armadillo, quinine and cortisone derived from jungle plants, and potential help for hemophiliacs in the blood of a manatee. There is no telling what species of plant or animal may next contribute to mankind's survival.

Some of BLM's forest management projects to benefit wildlife have been in areas of dense juniper woodland. These stands have resulted from fire suppression. Chainings, controlled burns and public firewood cutting have opened the woodland, creating more edge and allowing different stages to come into being, thus creating a richer habitat with a wider variety of niches.

BLM managers are also allowing commercial and private cutting of firewood in decadent (old, non-productive) stands of aspen to promote regeneration of the aspen and increase the wildlife habitat. In large desert valleys of the West, efforts are being made to manage isolated stands of trees which provide significant habitat for wintering bald eagles. These stands include roosting and perching trees situated near large open areas where rabbits are readily available for food.

Firewood cutting is one of the many recreational activities occurring on public lands in the West. It's not unusual for BLM personnel checking the cutting areas to find that folks have brought their entire families and the neighbors, and have turned the chore into a picnic. Christmas tree cutting also offers opportunities for family



outings.

Since World War II, this use of public lands for recreation has increased tremendously. Besides firewood cutting, the more traditional recreational activities of hiking, backpacking, sightseeing, swimming and camping are popular in forested high mountain areas.

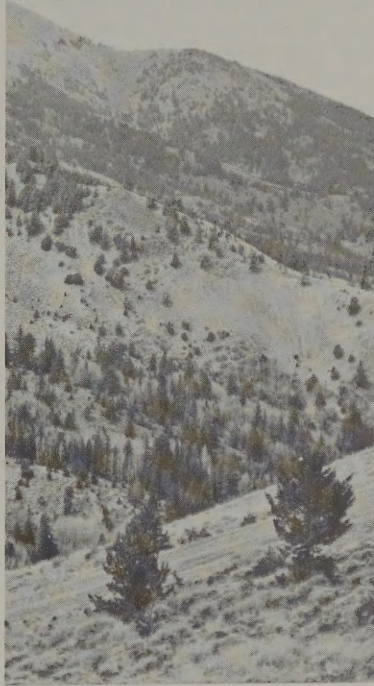
Winter activities such as snowmobiling, cross-country skiing and snow-shoeing are also increasing in popularity. While these recreational activities occur on all areas of the public lands, the forested areas are more heavily used because they provide more scenic and pleasant areas for the activities.

Another benefit of a well managed forest is its watersheds and riparian zones. A riparian zone is an area of standing or running water and the surrounding vegetation resulting from the availability of that water. Riparian zones are usually characterized by different plant communities than those found in nearby forested areas. For example, a riparian community found within the pinyon-juniper woodland of Utah will commonly contain willows, cottonwoods, birch and alder trees.

Everyone who visits a forest area knows the attractions of the stream and lakeside environments, whatever the recreational activity, riparian zones are invariably the most popular and the most heavily utilized areas within a woodland.

The same combination of water and diverse plant species which attract people also result in valuable wildlife habitat for a wide variety of species. The diversity of plant species and community structure results in a large amount of edge and an unusually rich habitat in a comparatively small area. As a result of this rich habitat, larger animals, such as elk, commonly use these zones as migration routes between summer and winter ranges. Aquatic species further add to the diversity of wildlife in a riparian zone.

The water in a riparian zone is the most important and valuable resource. The richness of habitat and attraction for the recreationist are all dependent upon the water resource. People who live in areas of the arid West will attest to the vital importance of water—for



Pinyon—juniper woodlands of the West provide a variety of benefits.

drinking, agriculture, industry and recreation.

Riparian zones are quite resilient. Yet, improper forest management, road building, heavy recreational use or livestock use can destroy habitat and disturb wildlife, destroy the value of the area for recreation, and severely impact water quality and quantity. Thus, the continuance of the riparian system and its attendant values is dependent upon proper management of its watershed.

Timber harvesting does not normally change the total amount of rain or snow entering a watershed (exceptions may be in areas of the Pacific Northwest with heavy fog which condenses on trees and drips to the forest floor much like rain). Harvesting may, however, change the distribution of water and snow on the ground, the amount evaporated from foliage, the rate of snow melt, the amount

of water stored in the soil, and the physical structure of the soil.

Care and planning must also go into timber harvesting, because, on steep slopes with unstable soils, the increased moisture content may lead to mass soil movements. Enough is currently known about snow accumulation and melt that timber harvesting can be planned to increase late-season flows, to help avoid flood conditions, and to provide run-off to meet fishery and human needs.

Timber management activities taking place outside the riparian zone may affect the quantity and quality of water that enters and influences the zone, and ultimately the availability of water for human use.

While concern for activities occurring in the watershed above the riparian zone is important, of equal concern is protection and maintenance of the vegetation within the zone. Riparian vegetation is valuable for regulating water temperature through shading, stabilizing stream banks, and acting as a buffer zone to stop debris from washing into the stream.

As valuable to man and animals and as heavily utilized as these zones are, it is not surprising that many riparian communities in the West are in a deteriorated condition. BLM is engaged in several projects to improve these riparian zones. These projects include fencing to prevent livestock from trampling stream banks and vegetation (watering troughs are set up outside the enclosures) and having volunteers such as Boy Scout troops plant willow and cottonwood to stabilize the banks.

A forest ecosystem is a dynamic complex of plant and animal species and the non-living environment which provides many benefits to mankind. Careful timber harvesting and proper forest management may produce many benefits for wildlife, recreation and improved water yields.

Douglas Dodge is an Outdoor Recreation Planner in BLM's Salt Lake District Office, Utah.

Stewardship

Continued from page 9

Another hurdle was the selection of a contractor. There are 270 firms on BLM's reforestation bidding list, plus quite a few more that don't normally bid on projects but were interested in the stewardship contract. Fortunately, there were only a handful of actual bidders on the project.

Even after the bids were received, it wasn't an easy job to select the contractor. An evaluation committee was formed and began the arduous task of reviewing the proposals, not only for cost, but also for other variables such as the prescriptions (or plans) for each of the 25 units, the bidder's personnel capabilities, and other factors.

The portion of the contract dealing with payments stipulates that 50 percent of the bid price will be paid upon satisfactory planting.

"When a unit is completed, we'll come out and do a formal inspection," said Gartley. "We look at how the tree is planted—is it too high, too low, or is it leaning or too loose. We'll especially check the root placement. Then, if they pass that inspection, they'll get paid fifty percent."

The second payment, which will represent up to an additional 15 percent (or 65 percent of the total) comes at the end of the first year and is based on first year survival. Another 15 percent will be paid based on the second year survival, with the last allotment of 20 percent following at the end of the third year. There are also incentive bonuses that may be paid according to root placement and control of a pesky hardwood on the sites, bigleaf maple.

"From what I've seen, the sites that have been planted look okay," Gartley noted. "From the experience so far, I'd have to say yes, that it has been successful."

And the future?

"We may get into another stewardship contract, I think it will take more than just one to get it fully operational and learn all that we can about the concept," Gartley said. "Perhaps the majority of our contracting could be done

this way, but in some cases stewardship will not be the answer. If it turns out to be the most efficient way of reforesting 25 percent of our land, then obviously, 25 percent of our contracts will likely be stewardship."

Stewardship could even go beyond merely establishing a healthy forest in the future, said Patton, the Eugene District Manager.

"Stewardship allows for creativity, for trying new techniques. People could develop new means of controlling animal damage, vegetation management or planting techniques. There is the possibility that such contracts may lead to breakthroughs in reforestation technologies."

Back at the planting site, the lunch break is almost over. The crew eats lunch in the small, aging bus that carries them to the work site each morning. During the last hour, the sky has become overcast and a break in the tone of the clouds shows a rain line sweeping toward the planting site. The first few raindrops plop off the hood of the bus. The crew wraps up lunch and begins to prepare for an afternoon of planting in wet weather.

"Rain's coming," said one planter as he donned his rain gear. "Good."

The crew pulls bundles of seedlings from a trailer, dips the roots into a slurry and loads them into planting bags.

"Two-hundred-fifty or three hundred?" someone questions Boehm.

"I think three hundred."

Five minutes later, all of the crew members are back on the slopes, their hoedads splitting through the air, placing trees in the ground. The give-and-take chatter between members of the crew dies down as the people settle into the business of giving the seedlings the best start possible for the future.

Don Smurthwaite is a Public Affairs Specialist in BLM's Eugene, Oregon office.

BLM and the Forest Service

Continued from page 11

Overall, the cooperation between all agencies and individuals was excellent. The Wyoming Game and Fish Department had several concerns which were addressed in the environmental analysis and incorporated into the timber sale contract. Other concerns by the Bureau over harvesting priorities were dealt with to everyone's satisfaction. The project was a fine example of different agencies and individuals cooperating to achieve a common goal. Through projects like the South Pass Sale, the Bureau of Land Management and the Forest Service, despite their differences in operation, can continue to manage the Nation's forest lands for the benefit of the public.

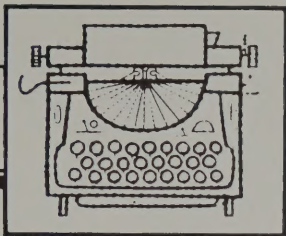
Scott Brayton, Public Affairs Specialist and Bob Berg, Forester both work out of BLM's Wyoming State Office.

Flapping gunnysacks...

Continued from page 14

being unloaded from the helicopter. It wasn't long until we were all feasting on a good ham and egg breakfast. As we savored a final cup of coffee, the helicopter was dropping water on hot spots along the line and the relief crews were working their way down the hill to ensure that the blaze would not escape again.

After breakfast and a brief nap, we were shuttled to some fine accommodations at the edge of the wheat field. Upon arriving at the weathered old barn, we immediately spread out our bedrolls in its rustic interior to grab some much needed rest. Our rest was short, however, as the barn was already occupied by about forty-eleven million flies who seemed to enjoy walking all over, exploring every exposed portion of their newly acquired guests. After several hours of swatting flies, chasing flies, being chased by flies, trying to hold a fly round-up and fly fry, we gave up, cleaned up a might and made the journey back to Prineville to a hot bath and a cold beer.



News Highlights

New O&C Policy Statement

On March 22, the Bureau announced a new policy statement concerning management of the O&C lands in western Oregon. The statement, effective April 21, will be used in the development of the 10-year timber plans in western Oregon. This land use planning process will be the primary guide for carrying out legislative mandates and Bureau policies.

O&C lands will be classified according to their ability to produce timber. Those lands suitable for timber production will be managed for such. In the normal process of managing for timber, those lands of course also will be available for wildlife and recreation and most other uses made of timber producing land. Lands not suitable for timber production will be allocated to meet the other uses set forth in the O&C Act. Where non-timber uses cannot be accommodated on lands not suitable for timber production, timber harvesting may be restricted or certain areas withdrawn from harvest to meet these needs.

Coal Report for 1982

During FY 1982, 104.4 million tons of coal were mined from Federal leases, which was 12 percent of the total production mined in the United States. Total coal production in the nation increased nine percent over the previous year. Thirty-

nine new coal leases were issued, bringing to 616 the total leases in effect on Federal lands.

FTC Cracks Down on Filing Services

The Federal Trade Commission (FTC) has stepped up the pace of its investigation and prosecution of filing services suspected of deceptive sales and advertising practices. Latest to join FTC's list of successful prosecutions was the First Petroleum Corporation, which has agreed to pay \$125,000 into a fund to reimburse clients bilked into making large investments by overblown claims. The company was also ordered by a Federal District Court to stop misrepresenting its success rate in obtaining oil and gas leases for its clients through the simultaneous oil and gas leasing system.

Filing Service Crack Down

In January, Patrick Petroleum Company and NRG, Patrick's brokerage firm, were charged with several counts of fraud. Patrick Petroleum was assessed a \$120,000 fine. NRG also entered a guilty plea to 12 counts of fraud.

Since 1980, nineteen companies have paid fines or been ordered to make charitable contributions totaling over \$850,000. Some 75 additional investigations are currently under way, according to the FTC, which

recommends that individuals who complain of suspected fraudulent operators be referred to the State Consumer Protection Division in the state where the filing service companies are based.

Pipeline Would Carry Pulverized Coal

Energy Transportation System, Inc. (ETSI) of Tulsa, Oklahoma, has applied for a water pipeline right-of-way on about two miles of land administered by BLM in South Dakota. The pipeline would carry pulverized coal to Oklahoma and Arkansas. The 1,828-mile pipeline would cross about 37 miles of other Federal lands in Wyoming and Colorado.

Two Caves in Wyoming Protected from Development

Two caves in northwestern Wyoming have been closed to mining, sale and other forms of development to protect their unique fossil, geological, and archaeological values. The caves are located on 528 acres of public lands near Lovell, Wyoming. Natural Trap Cave contains fossil remains of prehistoric creatures that once roamed the Great Plains. Horsethief Cave consists of long, complex passages that make it one of longest caves in the United States. A public land order published in the April 20 Federal Register reserves the caves for the protection of their recreational, scientific, and educational values.

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WASHINGTON, D. C. 20240

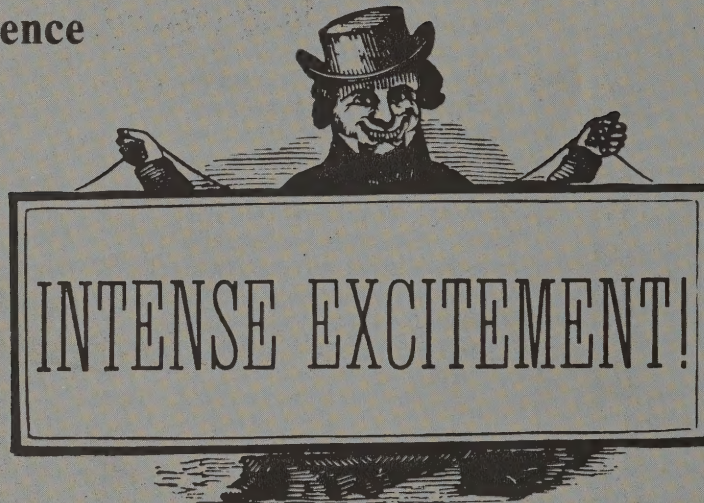
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